A NEW GENUS OF NORTH AMERICAN FRUIT FLIES

(Diptera: Tephritidae)

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Quisenberry's (1950) revision of the tephritid genus *Euaresta* characterizes the North American species as having, in addition to other features, swollen male fore femora, two pairs of lower frontoorbitals, dorsocentrals closer to the suture than to a transverse line between the supraalars, two pairs of scutellars, and a paired set of striations near the anal region of the claspers of the external male genitalia. The holotypes of three Coquillett species —*Trypeta (Euaresta) californica* (1894), *Euaresta munda* (1899), and *Euaresta mundula* (1899)—agree in all but the last two of these characters, and but for them probably should be placed in *Euaresta*. However, further study of this Coquillett material and of additional specimens from Colorado, Idaho, and California has brought to light other differences from *Euaresta* which justify the proposal of a new genus.

Valentibulla[2] Foote and Blanc, new genus

Type species: *Trypeta (Euaresta) californica* Coquillett, 1894.

Generic characters.—Anterior oral margin not produced beyond flat whitish-pollinose face; proboscis not geniculate; two pairs of upper frontoorbitals. Humerals and supraalars present; no presutural dorsocentrals; one pair postsutural dorsocentrals, situated closer to suture than to transverse line between the supraalars; one pair well developed scutellars; head and mesonotum with abundant, stout, white to yellowish-white setae. Abdomen, including external male genitalia and ovipositor sheath, dark brown to black, highly polished; male without *Euaresta*-like grooves near the anal region of external claspers; the proximal two-thirds or three-fourths of ovipositor sheath of female distinctly swollen in contrast to the rather suddenly narrowed distal third or fourth. Fore femora of male swollen to at least 1.5 times the diameter of mid and hind femora. Wing as in figs. 4, 5, and 6, with hyaline spots in a dark brown disc; a distinct, large bulla present in cell R_5; vein R_{4+5} sinuate distad of the m-cu crossvein and curved forward at its termination in the costal margin; middle marginal hyaline spot in cell R_1 usually extending across vein R_{2+3} into cell R_3.

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[1] Assistance in this study was obtained from the University of California at Riverside, the California Academy of Sciences, Stanford University, and the Museum of Comparative Zoology, Harvard University.

[2] *Valentibulla*: from the Latin *valentis*, meaning strong, referring to the prominent bulla in cell R5. The name was originally proposed by Quisenberry in an unpublished manuscript.

The most characteristic features of this genus are the flat or rather tumid white-pollinose face, which terminates anteriorly without any anterior production of the oral margin (figs. 1, 2, and 3); the highly polished, dark brown to black abdomen, exterior male genitalia and ovipositor sheath, the prominent bulla; and in most specimens the extension of at least the middle marginal hyaline spot in cell R_1 across vein R_{2+3} into cell R_3.

The genus is closely related to *Euaresta,* from which it may be separated by the absence of striations near the anal region of the male claspers, by the presence of only one pair of scutellar bristles, and by the terminally curved vein R_{4+5}. Adults of this genus, especially those of *thurmanae* Foote, superficially resemble those of *Aciurina* Curran, but the presence of a large, prominent bulla in cell R_5 leaves no doubt about their proper affinities.

Key to the North American Species of the Genus Valentibulla

1—Dark areas in cells 2nd M_2 and Cu_1 wider than the hyaline marks in those cells.....*thurmanae* Foote, new species

—Dark areas in cells 2nd M_2 and Cu_1 narrower than the hyaline marks in those cells..... 2

2—All pleural sclerites and at least the posterior half of disc of mesonotum shining dark brown; hyaline spot at margin of cell R_5 occupying about one-third of that cell.....*munda* (Coquillett)

—All pleural sclerites and entire disc of mesonotum heavily gray pollinose; hyaline spot at margin of cell R_5 occupying not more than one-fourth of that cell.....*californica* (Coquillett)

Valentibulla californica (Coquillett), new combination

(Figs. 2, 5)

Trypeta (Euaresta) californica Coquillett, 1894, Canad. Ent. 26:73 (♀, type loc., "Southern California"); Quisenberry, 1950, Jour. New York Ent. Soc. 58:10 (excludes from *Euaresta*).

Euaresta californica, Aldrich, 1905, Smiths. Inst. Misc. Coll. 46(1444):613 (repeats Coquillett data).

Euaresta mundula Coquillett, 1899, Jour. New York Ent. Soc. 7:265 (♂, type loc., Pareah, Utah); Aldrich, 1905, Smiths. Inst. Misc. Coll. 46(1444):613 (repeats Coquillett data); Quisenberry, 1950, Jour. New York Ent. Soc. 58:10 (excludes from *Euaresta*). (New Synonymy).

Head (Fig. 2).—Front white to yellow, wider at vertex than width of one eye, closely set with short, stout, white bristles; two pairs lower frontoorbitals, two pairs upper frontoorbitals; face white pollinose, flat from lateral view, the oral margin not at all projecting; cheek 0.15 to 0.25 times eye height; antenna 0.5 to 0.6 times as long as face. *Thorax.*—Mesonotum densely gray pollinose, closely set with short, stout, white to yellowish-white bristles; scutellum gray pollinose on proximal third, half or two-thirds,

the remaining parts yellow, in some cases the gray covering so much of dorsal surface that the yellow is seen only from a direct posterior view; mesopleuron gray and yellow, the gray extending from ventral half to almost the entire sclerite; the yellow, when present, appearing principally on dorsal and posterior margins without a sharp line of demarcation; sternopleuron definitely dark gray pollinose in all cases. *Legs.*—Usually entirely yellow, occasionally with a narrow dark brown streak ventrally on proximal half of hind femur; all tarsomeres entirely yellow. *Wing* (Fig. 5).—Dark reddish brown except for hyaline spots as follows: three in costal cell; subcostal cell often entirely dark, more commonly with at least the suggestion of a hyaline spot at base, sometimes this spot very large and filling basal third of cell; cell R_1 with three spots extending from the costa to vein R_{2+3}, rarely the third spot in the row extremely small to absent; cell R_3 usually with a continuation of the middle hyaline spot over vein R_{2+3}, rarely with a small, round spot below the distal spot in cell R_3; two spots in cell R_3 between the terminations of veins R_{2+3} and R_{4+5}, the distal one crossing vein R_{4+5}; a large spot in the distal end of cell R_5; three spots in second cell M_2, the distal one crossing vein M_{1+2} into cell R_5; a very large, distinct bulla in cell R_5; a large spot near center of cell R located directly posterior to subcostal cell but absent in one specimen; a large spot near distal end of first cell M_2 halfway between crossveins r-m and m-cu; three large spots in the distal two-thirds of cell Cu_1, the proximal one often crossing over vein Cu_2 + 2nd A and fusing with distal light spot in second anal cell, leaving a brown spot at the termination of that vein in the wing margin, occasionally these spots separated by a dark area of varying width along the vein; two to four light spots in second anal cell, varying from small and well separated to quite large and narrowly separated, or one or more obviously fused. *Abdomen.*—Shining dark brown to black. External male terminalia as in generic description. Female ovipositor sheath shining, constricted on apical third, about as long as the two preceding abdominal tergites.

Specimens examined.—Holotype female, *Trypeta (Euaresta) californica* Coquillett, with the following labels: "Los Angeles Co., Cal.", "May", "Coquillett collector", "Type No. 309, USNM", and "Trypeta californica Coq., type". Holotype male, *Euaresta mundula* Coquillett, with the following labels: "2426", "Type No. 4408, USNM", Pareah, Utah". CALIFORNIA: Kern Co.: 3♂♂, 3♀♀, Frazier Pk., 1♂, 2♀♀, Rosamond, 3♂♂, 1♀ Tehachapi (all IV.25.56, *Chrysothamnus nauseosum,* F. L. Blanc); 1♀ Cuyama Valley, IV.8.32, E. P. Van Duzee; Los Angeles Co.: 2♂♂, 2♀♀, Gorman, IV.25.56, *Chrysothamnus nauseosum,* F. L. Blanc; Mono Co.: Mammoth, IV.12.49, *Chrysothamnus* gall, D. D. Pierce; San Bernardino Co.: 1♂, 2♀♀, Barton Flats, San Bernardino Mts., VI.14.54, *Chrysothamnus nauseosum,* Timberlake; 1♂, 2♀♀, Oro Grande Wash, 4 mi. S. Adelanto, V.9.49, *Chrysothamnus nauseosum,* Timberlake; 1♀, Seven Oaks, VI.12.36, W. C. Reeves; 1♀, Seven Oaks, VI.14.50, Timberlake; Siskiyou Co.: 2♂♂, 1♀, Montague, V.20.36, *Artemisia* sp., Jones & Fosan; County unknown: 1♂, 2♀♀, Horsethief Cr., IV.21.35, *Salix* sp., C. E. Norland.

NEVADA: 2♂♂, Kyle Canyon, Charleston Mts. 7200', Clarke Co., VI.4.41, *Chrysothamnus nauseosum*, Timberlake.

The variation found in the rather extensive California series completely closes the gap between the Coquillett types of *californica* and *mundula*, leaving no doubt in our minds that the two species are synonymous.

The hyaline wedge at the wing apex never occupies more than the apical fourth of cell R_5, and its lower margin is always well-separated from the apex of vein M_{1+2}, which is never noticeably curved backward apically. This character, together with the densely gray-dusted mesonotum and pleural sclerites, is consistently characteristic of *californica* in contrast to *munda* Coquillett (see discussion of that species). *V. thurmanae* Foote may be separated from both *californica* and *munda* by the widely separated hyaline spots along the posterior wing margin, the larger size, the distinctly reddish cast of the body, and the short, blunt bristles covering the front and mesonotum.

Valentibulla munda (Coquillett), new combination

(Figs. 3, 6)

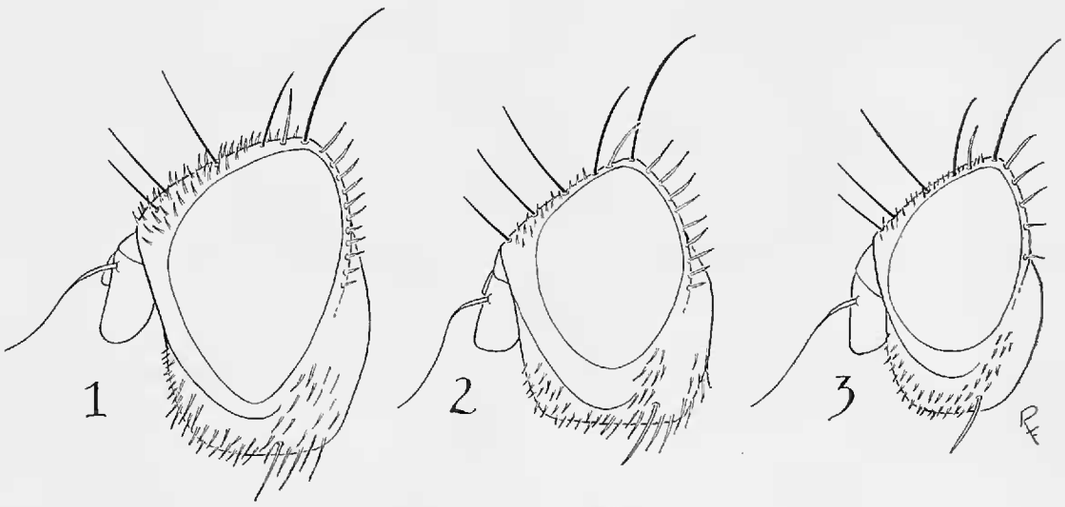
Euaresta munda Coquillett, 1899, Jour. New York Ent. Soc. 7:265 (♀, type loc. Elko, Nevada); Aldrich, 1905, Smiths. Inst. Misc. Coll. 46(1444):613 (repeats Coquillett data); Quisenberry, 1950, Jour. New York Ent. Soc. 58:10 (excludes from *Euaresta*).

Tephrella euarestoides Bates, 1935, Pan-Pac. Ent. 11:106; fig. 1, p. 105 (♀, type loc. Ridgway, Colo., 7000 ft., June 23–30, 1928; lat. view of head.) (New Synonymy).

Head (Fig. 3).—Front white to yellow, almost two times as wide as one eye at vertex, covered with short, stout, yellowish-white bristles; two or three pairs lower frontoorbitals; two pairs upper frontoorbitals; face white or yellowish-white, slightly tumid, about one-half the length of face. *Thorax.*—Mesonotum with shining dark brown to nearly black ground color with an extremely light gray dusting and closely set with short, stout, yellowish-white bristles; scutellum concolorous with disc of thorax but without short bristles; mesopleuron and sternopleuron shining dark brown with a very small amount of gray dusting. *Legs.*—Entirely yellow, including coxae and tarsomeres. *Wing* (Fig. 6).—Dark reddish brown to brown except for hyaline spots as follows: two in costal cell; subcostal cell entirely dark or with a suggestion of a hyaline spot at base, in one or two specimens distinct and filling basal fourth of cell; cell R_1 with three spots extending from costa to vein R_{2+3}, rarely the apical spot small to absent; cell R_3 in all specimens with a continuation of the middle hyaline spot over vein R_{2+3}; two spots in margin of cell R_3, the distal one crossing vein R_{4+5}; a very large triangular spot in distal third or more of cell R_5; cell R_5 with a large, prominent bulla: three spots in 2nd cell M_2, the

distal one extending across vein M_{1+2} into cell R_5, these hyaline areas separated by infuscations distinctly narrower than the width of the hyaline areas; a large round spot near center of cell R located directly posterior to subcostal cell; a large round spot near distal end of first cell M_2 halfway between crossveins r-m and m-cu; three in distal two-thirds of cell Cu_1, the proximal one always separated from distal in cell 2nd A by a dark area extending the entire length of vein Cu_2+2nd A; two to four light spots of varying sizes in cell 2nd A, rarely fused. *Abdomen.*—Shining brown to black. External male terminalia as in generic description. Female ovipositor sheath constricted on apical third, about as long as last two abdominal tergites.

Specimens examined.—Holotype male, *Euaresta munda* Coquillett with the following labels: "Elko" and "Type No. 4407, USNM". Holotype female, *Tephrella euarestoides* Bates, with the following labels: "Ridgway, Colo., alt. 7000′, June 23–30, 1928", "Type", and "*Tephrella euarestoides* Bates, holotype". IDAHO: 3♂♂, 3♀♀, Almo, Cassia Co., VI.12–13.53, H. E. Cott; 1♀, Oreana, Owyee Co., III.16.33, from galls on *Chrysothamnus;* 5♂♂, 1♀, Wieser, Washington Co., IV.26.09.



EXPLANATION OF FIGURES

Fig. 1, Lateral view of head of *Valentibulla thurmanae* Foote; fig. 2, Same, *V. californica* (Coquillett); fig. 3, Same, *V. munda* (Coquillett).

Along the margin of the wing of *munda,* the distance between the terminations of veins R_{2+3} and R_{4+5} is only slightly greater than the distance between those of veins R_{4+5} and M_{1+2}, due in part to the fact that vein M_{1+2} bends posteriorly at its apex. The resulting space is almost completely filled by a hyaline wedge that occupies at least the apical third of cell R_5 and almost touches veins R_{4+5} and M_{1+2} at the wing margin. This character is in distinct contrast to that of *californica* Coquillett, in which the spot is much smaller (see discussion of that species). This character, together with the shining brown to black thorax, will serve to separate *munda* from the other species treated herein.

Differences from *thurmanae* Foote are treated in the discussion of that species.

Bates (1934) himself recognized the doubtful position of his *euarestoides* in *Aciurina (=Tephrella)*. But for the smaller light spots near the margin of its cell 2nd A, the holotype of *euarestoides* in the Museum of Comparative Zoology does not differ markedly from that of *munda*.

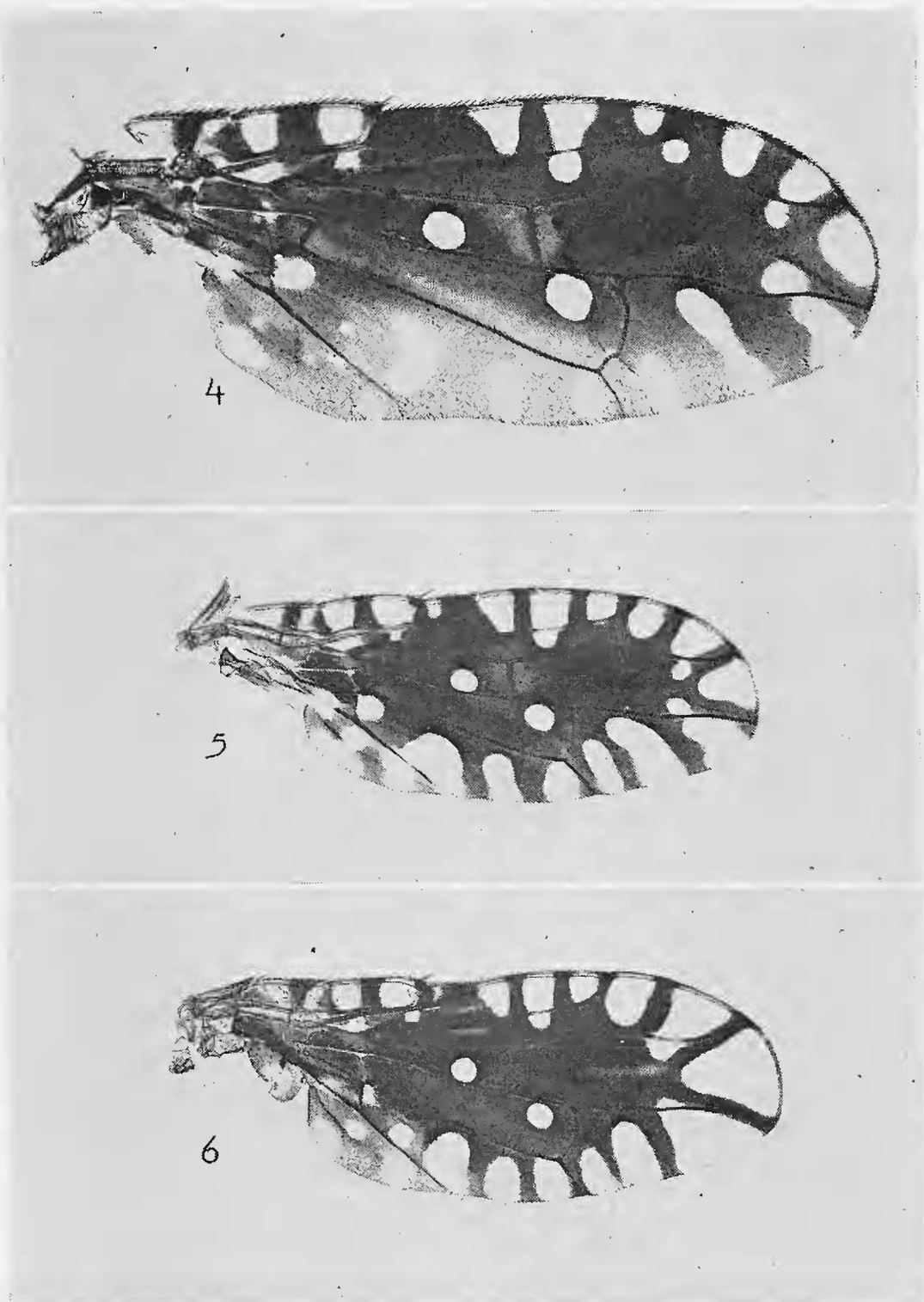
Valentibulla thurmanae Foote, new species

(Figs. 1, 4)

Head (Fig. 1).—Front distinctly yellow, almost two times the width of one eye at vertex, closely set with abundant yellowish bristles; two or three pairs lower frontoorbitals; two pairs upper frontoorbitals; face whitish-yellow pollinose, slightly tumid from lateral view; cheek 0.25 times as high as eye; antenna slightly over one-half the length of face. *Thorax.*—Mesonotum densely gray pollinose, closely set with stout, blunt bristles of a definite reddish-yellow color; scutellum with a median triangle of gray pollinosity similar to that of thorax, sides subshining, reddish; postscutellum and metathorax subshining black with reddish tinge; mesopleuron reddish pollinose; sternopleuron gray pollinose in contrast. *Legs.*—Entirely yellow, including coxae and tarsomeres. *Wing* (Fig. 4).—Reddish brown except for hyaline spots as follows: three in costal cell; subcostal cell entirely dark; three in cell R_1, the proximal two extending from costa to vein R_{2+3}, the distal spot either small and not attaining that vein or large and exceeding it; cell R_3 always with a continuation of the middle hyaline spot over vein R_{2+3} and almost always with a small round spot below the distal spot in cell R_1, sometimes these two spots fused; two marginal spots in cell R_3, the distal one crossing vein R_{4+5}; a spot in the margin of cell R_5 extending into the cell only a very short distance; cell R_5 with a large, distinct bulla; three spots in 2nd cell M_2, the distal one crossing vein M_{1+2} into cell R_5, the hyaline areas in 2nd cell M_2 separated by distances greater than their respective widths; a large round spot near center of cell R located directly posterior to tip of subcostal cell; a large round spot just distad of r-m crossvein in 1st cell M_2; three spots in distal two-thirds of cell Cu_1, the proximal one always distinct and never fusing with distal light spot in cell 2nd A, across the tip of vein Cu_2 + 2nd A; cell 2nd A mostly brown with two to four small hyaline spots as shown. *Abdomen.*—Shining brown to black. External male terminalia as in generic description. Female ovipositor sheath constricted on apical third, about 2.5 times as long as the two preceding abdominal tergites.

Holotype female, Mt. Tamalpais, Marin County, California, VI.23.18, E. P. Van Duzee (in collection of California Academy of Sciences). Paratypes: 1♀, same data as type; 1♂, 1♀ *in copulo,* Mt. View, Santa Clara County, California, "Ehrhorn Lot" (no further data); 1♀ without data of any kind.

The most obvious wing character distinguishing *thurmanae* from the two preceding species is the fact that the hyaline spots along the posterior margin are separated by distances greater than the widths of the spots themselves. Further, the light brown



EXPLANATION OF FIGURES

Fig. 4. Dorsal view of right wing of *Valentibulla thurmanae* Foote; fig. 5, Same, *V. californica* (Coquillett); fig. 6, Same, *V. munda* (Coquillett).

area in the posterior third of the wing disc of *thurmanae* contrasts markedly to the dark brown of the anterior two-thirds. Like *californica* Coquillett and unlike *munda* Coquillett, the hyaline apical spot is restricted to the apical 5th or 6th of cell R_5 and is well separated from veins R_{4+5} and M_{1+2} at the margin, but unlike both those species, is larger and redder and cell 2nd A is always more extensively infuscated. The short, stout bristles covering the front and mesonotum of *thurmanae* have a distinctly red cast in contrast to the yellow to white found in those of the other two species.

The species is named in honor of Ernestine B. Thurman.

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A NEW HOST RECORD FOR ARCHYTAS CALIFORNIAE (WALKER) IN CALIFORNIA

(Diptera: Tachinidae)

A small number of larvae of *Euchaetias oregonensis* (Stretch) (Lepidoptera: Arctiidae) (Det. H. H. Keifer) were collected on *Apocynum cannabinum* L. in the Sacramento, California vicinity by H. H. Keifer on July 7, 1950 for rearing. On August 8, 1950 a male specimen of *Archytas californiae* (Walker) emerged from one of the *Euchaetias* pupae. The larva of the *Archytas* was found to have pupated within the pupal case of its host in such a manner that its posterior spiracles were directed caudally within the pupa of the *Euchaetias*. The *Archytas* adult emerged through the anterior end of its host pupa. *Archytas californiae* appears to be generally distributed throughout the Pacific Coast states. It occurs in at least four life zones of California, since I possess specimens from localities representing the Lower Sonoran to the Canadian life zones.—Paul H. Arnaud, Jr., *California Department of Agriculture, Sacramento.*